

REMARKS

The above-identified patent application has been amended and Applicants respectfully request the Examiner to reconsider and again examine the claims as amended.

Claims 1 to 23 are pending in the application. Claims 1 to 14 and 16 -23 are rejected. Claim 15 is objected to. Claims 1, 3, 6, 9, 10, 12, 15, 18, 19, and 20 are amended herein.

Claims 3 and 12 were objected to because of certain informalities. Applicants have amended claims 3 and 12 with the Examiner's comments in mind and the claims should now be proper.

Examiner rejected Claims 1-4, 7-8, 10-13 and 18-21 under 35 U.S.C. §102(b) as being anticipated by Young et al (U.S. 5,570,392). The Examiner also rejected Claim 5 under 35 U.S.C. § 103 as being unpatentable over Young et al and further in view of Vinekar (U.S. 6,031,431). The Examiner also rejected Claim 6 under 35 U.S.C. § 103 as being unpatentable over Young et al and further in view of Glas et al (U.S. 6,560,296). The Examiner also rejected Claim 9 under 35 U.S.C. § 103 as being unpatentable over Young et al and further in view of Iwamatsu et al (U.S. 5,648,988). The Examiner also rejected Claim 14 under 35 U.S.C. § 103 as being unpatentable over Young et al. The Examiner also rejected Claims 16-17 under 35 U.S.C. § 103 as being unpatentable over Young et al and further in view of Stanley et al (U.S. 2002/0141440). The Examiner also rejected Claim 22 under 35 U.S.C. § 103 as being unpatentable over Young et al and further in view of Rhines et al (U.S. 5,392,299). The Examiner also rejected Claim 23 under 35 U.S.C. § 103 as being unpatentable over Young et al and in view of Rhines et al and further in view of Keevil et al (U.S. 2003/0142764).

The Examiner indicated that Claim 15 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants have amended Claim 15 in independent form and believe the claim is now allowable.

The present invention teaches a technique to shape baseband signals for QPSK modulation. The Examiner has cited Young et al against present Claim 1. However, Young et al does not teach a method of shaping a baseband signal comprising providing a plurality of coefficient memories as required by claim 1 of the present application. In the exemplary embodiment of the present invention, a plurality of coefficient memories are provided in both the in-phase baseband bit shaping circuit and the quadrature baseband bit shaping circuit. Figure 1 shows the two baseband shaping circuits, the in-phase baseband shaping circuit 104I and quadrature baseband shaping circuit 104Q. As shown in figures 2A - D, the in-phase baseband shaping circuit 200I and the quadrature baseband shaping circuit 200Q each have a plurality of coefficient memories.

Young et al teaches a digital down converter where 40-bit control words are serially loaded into control register 350 to provide the parameters for operation of converter 300. It should be appreciated that converter 300 includes a single coefficient ROM 328. RAM 322 is used to store 244 words from scaling multipliers 318-319 (See Col. 16, lines 3 - 11) which are then added by adders 324-325 and their sum then multiplied by the coefficient value (stored in ROM 328) (See col. 16, lines 12 - 15). Applicants fail to understand where Young et al teaches a plurality of coefficient memories.

It is respectfully submitted that Claim 1 is patentable over Young et al, since Young et al neither describes nor suggests "providing a plurality of coefficient memories, each having a plurality of coefficients values representing filter response waveform values; ...; providing a negative value for each of the retrieved ones of the plurality of coefficient values; selecting in response to the baseband signal for each coefficient value, one of the retrieved coefficient value and the negative value; and summing the selected values for providing a shaped signal".

Dependent Claim 2 adds a further patentably distinct feature of the invention reciting

"sharing the plurality of coefficient memories for shaping both an in-phase baseband signal and a quadrature baseband signal".

Dependent Claim 6 adds the limitation "wherein selecting for each coefficient value comprises selecting an in-phase value in response to the in-phase signal and selecting a quadrature value in response to the quadrature signal; and wherein summing the selected values comprises summing the selected in phase values for providing a shaped in phase signal and summing the selected quadrature values for providing a shaped quadrature signal" to claim a further patentably distinct feature of the invention.

Dependent Claim 8 adds a further patentably distinct feature of the invention reciting "combining at least two filter coefficients for forming the plurality of coefficient values such that coefficient memory storage is minimized"

Dependent Claim 10 adds the limitation "the sum of a first filter response value and a second filter response value; and the difference of a first filter response value and a second filter response value; and wherein the step of retrieving an addressed coefficient value retrieves one of the sum of a first filter response value and a second filter response value and the difference of a first filter response value and a second filter response value" to claim a further patentably distinct feature of the invention.

As Claims 3 - 5, 7, 9, 11 -14, and 16 - 19 depend from Claim 1 and cite additional structure, they too are allowable for analogous reasons.

Independent Claim 20 is neither described nor suggested by the references since the references taken separately or in combination neither describe nor suggest the combination of "a plurality of coefficient memories, each memory having an input address bus, a multiplexor input and a coefficient value output; ... ; a plurality of negative value circuits, ... ; a plurality of

2:1 multiplexors, each having a first input coupled to a respective one of the first register outputs and having a second input coupled to a respective one of the output of the plurality of negative value circuits; a plurality of second registers, each having a digital to analog (D/A) clock input and an input coupled to a respective one of the outputs of the plurality of 2:1 multiplexors, and an output; and an adder having a plurality of inputs coupled to respective ones of the plurality of second registers."

As Claims 21 through 23 depend from Claim 20 and cite additional structure, they too are allowable for analogous reasons.

Applicants have submitted herewith a Petition for an Extension of Time for three months with authorization to charge Daly, Crowley & Mofford, LLP Deposit Account No. 50-0845 to cover the costs of the petition. Authorization to charge Daly, Crowley & Mofford, LLP Deposit Account No. 50-0845 for any excess fees due or credit any overpayment is hereby given.

Accordingly, re-examination and reconsideration are requested in view of the above amendment and remarks.

Respectfully submitted,

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